

PROCEEDINGS

of the
American Society
of
Civil Engineers

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SEPTEMBER, 1924

No. 7

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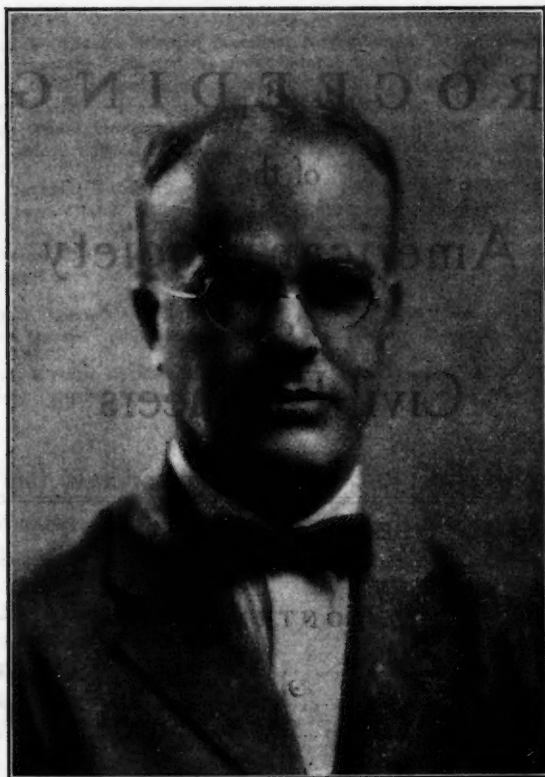
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1882. JOHN HOFFMAN DUNLAP. 1924.

WHEREAS, it has pleased Almighty God to take from us our beloved Secretary,

JOHN HOFFMAN DUNLAP

Be It Resolved: That the President and the Executive Committee, in behalf of the Board of Direction and the members of the American Society of Civil Engineers, express their sense of the great loss which the Society and the Engineering Profession of the United States has suffered by the death of our Secretary, who by his labors in our behalf; by his faithfulness, efficiency and courtesy; by his advocacy of the highest ideals for the advancement of the Profession; by his unselfish efforts to serve every member of the Society; and by the example he set us as a Christian citizen, has made a lasting impression in our hearts.

Be It Further Resolved: That our heartfelt sympathy be extended to his family, that his family be furnished with a copy of this resolution, and that it be spread upon our records, printed in the *Proceedings* and *Transactions*, and that copies be furnished to the technical press and to other Engineering Societies.

(Resolution adopted by the Executive Committee, August 1, 1924.)

John H. Dunlap

John H. Dunlap, Secretary, American Society of Civil Engineers, died on July 29, 1924, at the Presbyterian Hospital, Chicago, Ill., as a result of injuries received in a train collision on June 30 at Buda, Ill.

Mr. Dunlap was buried on July 31, 1924, at Franklin, Vt., the services being held in the little village church not far from where he was married 14 years earlier.

Past-President Charles F. Loweth, Chairman of the Executive Committee of the Society, Mr. Dunlap's brother, the Rev. Roger A. Dunlap and the Rev. William F. English, Jr., accompanied Mrs. Dunlap from Chicago to Franklin, Vt., where the Assistant Secretary and two members of the staff, met the party. Many beautiful floral offerings evidenced the sympathy of friends, Engineering Societies, and Local Sections throughout the country and at the principal cities through which the train passed, it was met by delegations of engineers.

The services were conducted by the Rev. Mr. English, a college mate and fraternity brother of Mr. Dunlap, who spoke eloquently of his friend's early life and character. Mr. Loweth, on behalf of the Society, delivered a forceful tribute to Secretary Dunlap's personality and accomplishments.

John H. Dunlap was born in Harrisville, N. H., September 9, 1882. He was graduated in 1908 from the Thayer School of Civil Engineering at Dartmouth College, having received his A. B. Degree from that institution in 1905.

It is hoped to publish later an adequate memoir and to incorporate in it, the substance of the addresses of Mr. English and Past-President Loweth.

Society Appointments

Recent appointments of Society representatives have included the following:

Committee of the Seismological Society on Building for Safety with Special Reference to Earthquake and Fire Hazard, H. D. Dewell, M. Am. Soc. C. E.

Advisory Board on Highway Research, Division of Engineering, National Research Council, Henry G. Shirley, M. Am. Soc. C. E. (to take the place of Robert A. Cummings, M. Am. Soc. C. E., resigned).

Third Pan-American Scientific Congress, Lima, Peru, December 20, 1924, Charles W. Sutton and W. J. Spalding, Members, Am. Soc. C. E.

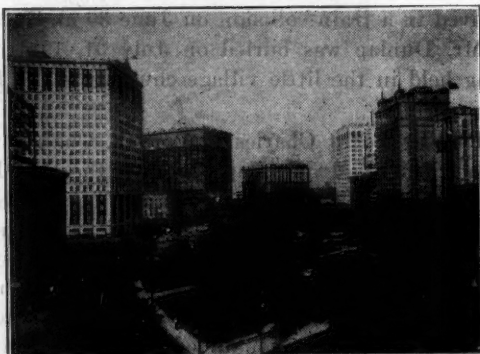
Stresses in Structural Steel

The Society's Special Committee on Stresses in Structural Steel has done considerable work since its last report. At its meeting of May 24, 1924, which attracted a representative attendance, many important details were discussed including (1) the values for use as a basis for fixing working stresses; (2) the ratio of yield point to working stress for extreme fibers in bending; (3) basic column stresses; (4) workmanship; (5) maximum thickness of material; and (6) stresses for building codes.

Fall Meeting, Detroit, Mich., October 22-25, 1924

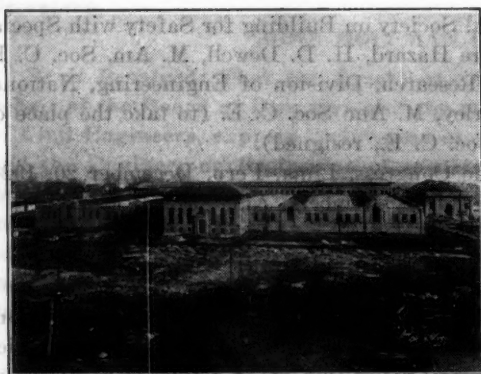
The Fall Meeting of the Society will be held in Detroit, Mich., October 22-25, 1924, with Meeting Headquarters at the Hotel Tuller.

Detroit, which is the largest city in the State of Michigan and probably best known on account of its immense automobile industries, is situated on the Detroit River about eighteen miles from Lake Erie. It is also a shipping point for great quantities of grain, wool, pork, and copper ore to Eastern markets. In addition to its automobile industries, Detroit has many other manufacturing plants, including, railroad car works, iron-working and shipbuilding establishments, tanneries, tobacco factories, adding machine works, etc. In view of the commercial and industrial importance of the city and the great work of engineers in its activities, Detroit presents an ideal city for the holding of a meeting of the Society.



GRAND CIRCUS PARK, HOTEL TULLER IN BACKGROUND.

The Technical Program of the Fall Meeting contains a broad list of subjects of interest to engineers in a variety of fields. In addition to the Technical Sessions there will be Excursions to industrial plants and other points of engineering interest. The Ladies are especially invited to attend the meeting. Sightseeing tours and other features for their entertainment will form a part of the program.



FILTRATION PLANT, DETROIT WATER-WORKS.

WEDNESDAY, OCTOBER 22, 1924

On the afternoon of Wednesday, October 22, preliminary to the official opening of the Fall Meeting, there will be a Joint Session of the Sanitary Engineering Division with the Laboratory Section of the American Public Health Association.

THURSDAY, OCTOBER 23, 1924

Following the Addresses of Welcome and Response, the morning and afternoon will be devoted to the discussion of a paper by F. C. Shenehon, M. Am. Soc. C. E., entitled "The St. Lawrence Deep Waterway to the Sea". After the close of the Technical Session there will be an Informal Dinner and Social Evening at the Tuller Hotel.

FRIDAY, OCTOBER 24, 1924

The morning will be devoted to simultaneous meetings of the Technical Divisions of the Society, the Power, Sanitary Engineering, City Planning, and Highway Divisions having arranged Programs.

The subjects to be discussed at the various Division Meetings are as follows:

Power Division:

"The Work of the Committee on Ice Trouble at Hydro-Electric Plants".

Sanitary Engineering Division:

"Recent Developments in English Sewage Treatment"

"Treatment of Sewage at Chicago"

"Sewage Disposal and Water Supply Problems in the Detroit Area".

City Planning Division:

"Factors in the Zoning of Cities".

Highway Division:

"Highway Transportation in Pennsylvania"

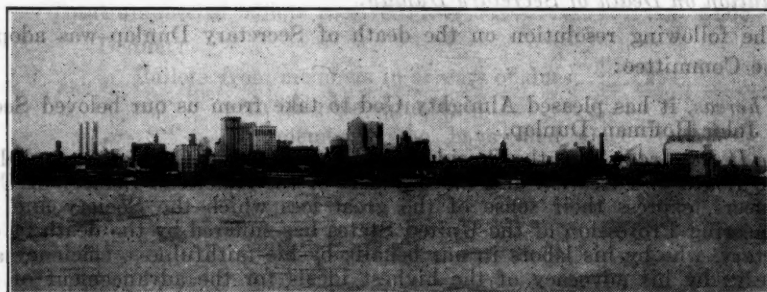
"Traffic Regulation on State Highways".

The afternoon of Friday will be devoted to Optional Excursions to points of interest about Detroit. There are many places of interest to engineers, among which are the Ford Motor Works, Detroit Edison Plants, Detroit Water-Works and Sewers. After the Excursions, the members and guests will be entertained at a Dinner followed by an informal Social Evening at the Detroit Yacht Club.

SATURDAY, OCTOBER 25, 1924

The Fall Meeting will be concluded on Saturday with two attractive optional features, a meeting of the City Planning Division and an All-Day Excursion to Ann Arbor, Mich. On Saturday morning the City Planning Division will hold a meeting devoted to a discussion of the various phases of "The Influence of Zoning on the Design of Public Utilities", following which in the afternoon there will be an automobile drive about Detroit for those interested in City Planning.

The party participating in the All-Day Excursion to Ann Arbor will visit the grounds and buildings of the University of Michigan during the forenoon and in the afternoon will attend the Michigan-Wisconsin Football Game.



DETROIT SKY-LINE.

Meeting of the Executive Committee

This is an abstract of the notes of the Assistant Secretary and subject to approval by the Committee at its next meeting.

A meeting of the Executive Committee was held at Society Headquarters on August 1, 1924; Past-President Loweth presiding; C. E. Beam, Assistant Secretary; and present, also, Messrs. Bush, Holland, Winsor, and Treasurer Hovey.

Closing of Society Reading Room during Evenings:

It has been the practice to keep the Society Reading Room open from 9 A. M. to 10 P. M., except during July and August. During 1923 and 1924 the average use of the room has been only two visitors per evening. In view of this small attendance and the fact that, in addition, Engineering Societies' Library is open for use, it was voted that the Society Reading Room be closed after 6 P. M. (during July and August it is closed at 5 P. M.) until further notice, except on meeting nights of the Society and of the New York Section, or on other evenings at the discretion of the Secretary.

Revised Rules for the Use of the Society's Addressograph and Mailing List:

New regulations covering the use of the Addressograph and Mailing List of the Society were adopted and ordered printed as follows:

1.—The Addressograph will be used by the Secretary only in the business of the Society conducted through his office and for the issuance of notices of joint meetings of this with other Societies.

2.—The Mailing List will be furnished by the Secretary only upon request:

- (a) To Local Sections free of charge for official business pertaining to Society or Local Section affairs; and
- (b) To Corporate Members of the Society at cost, to be used by them only for communications with members on matters pertaining to Society affairs.

3.—The Secretary is authorized to use his discretion regarding each application as to whether it is in accordance with the spirit of these rules.

Resolution on Death of Secretary Dunlap:

The following resolution on the death of Secretary Dunlap was adopted by the Committee:

Whereas, it has pleased Almighty God to take from us our beloved Secretary, John Hoffman Dunlap,

Be It Resolved: That the President and the Executive Committee, in behalf of the Board of Direction and the members of the American Society of Civil Engineers, express their sense of the great loss which the Society and the Engineering Profession of the United States has suffered by the death of our Secretary, who by his labors in our behalf; by his faithfulness, efficiency and courtesy; by his advocacy of the highest ideals for the advancement of the Profession; by his unselfish efforts to serve every member of the Society; and

by the example he set us as a Christian citizen, has made a lasting impression in our hearts.

Be It Further Resolved: That our heartfelt sympathy be extended to his family, that his family be furnished with a copy of this resolution, and that it be spread upon our records, printed in the *Proceedings* and *Transactions*, and that copies be furnished to the technical press and to other Engineering Societies.

**List of Official Nominees for the
Offices to be Filled at the Annual Election,
January 21, 1925.**

For President to serve One Year:

ROBERT RIDGWAY, New York, N. Y.

For Vice-Presidents, to serve Two Years:

RICHARD L. HUMPHREY, Philadelphia, Pa.....To Represent Zone 2

MILO S. KETCHUM, Urbana, Ill....." " " 3

For Directors, to serve Three Years:

W. T. CHEVALIER, New York, N. Y.....To Represent District No. 1

CHARLES GILMAN, New York, N. Y....." " " 1

C. M. SPOFFORD, Boston, Mass....." " " 2

A. R. RAYMER, Pittsburgh, Pa....." " " 6

PAUL H. NORCROSS, Atlanta, Ga....." " " 10

H. D. DEWELL, San Francisco, Calif....." " " 13

In accordance with Article VII, Section 6, of the Constitution, there is given above a list of "Official Nominees" for the offices to be filled at the Annual Election to be held January 21, 1925, as determined from the Report of the Tellers appointed to canvass the Second Ballot for Official Nominees, August 15, 1924. The report of the Tellers is as follows:

"August 15, 1924

"TO THE ASSISTANT SECRETARY,

AMERICAN SOCIETY OF CIVIL ENGINEERS

"DEAR SIR:

"The Tellers appointed to canvass the Second Ballot for Official Nominees report as follows:

"Total number of ballots received..... 4 609

"Deduct:

Ballots from members in arrears of dues..... 251

" with illegible signatures..... 4

" members who have died since

casting vote..... 2

" unsigned..... 22

"Total ballots not canvassed..... 279

"Ballots canvassed..... 4 330

"For President:

Robert Ridgway.....	3 188
Leonard Metcalf.....	1 079
Void	11
Blank	52
Total	4 330

"For Vice-President, Zone 2:

Richard L. Humphrey.....	508
John C. Hoyt.....	393
John E. Greiner.....	255
Void	2
Blank	8
Total	1 166

"For Vice-President, Zone 3:

M. S. Ketchum.....	447
H. R. Safford.....	292
Willard Beahan.....	186
Void	8
Blank	2
Total	935

"For Director, District No. 1:

W. T. Chevalier.....	694
Charles Gilman.....	534
James F. Sanborn.....	448
Void	5
Blank	115
Total votes cast.....	1 796

"For Director, District No. 2:

C. M. Spofford.....	201
C. M. Saville.....	115
Void	0
Blank	3
Total	319

"For Director, District No. 6:

A. R. Raymer.....	102
E. K. Morse.....	40
C. P. Fortney.....	27
Void	0
Blank	23
Total	192

"For Director, District No. 10:

P. H. Norcross.....	174
G. M. Braune.....	113
Void	0
Blank	7
Total	294

"For Director, District No. 13:

H. D. Dewell.....	188
C. H. Sweetser.....	45
Void	0
Blank	1
Total	234

"Respectfully submitted

"W. F. REEVES, *Chairman*

"H. G. BALCOM
F. A. SNYDER
CHARLES S. GLEIM
A. A. JOHNSON
ALBERT W. BUEL
RALPH SMILLIE
HOWARD L. KING
THOMAS H. WIGGIN

"C. F. GARDNER
ORRIN L. BRODIE
ALGER C. GILDERSLEEVE
W. J. BOUCHER
SYDNEY WILMOT
WALTER L. MORSE
R. C. STRACHAN
JOHN W. SIMMONS, JR.,

Tellers."

Personnel Changes in Advisory Board on Highway Research

The position of Director of the Advisory Board on Highway Research of the National Research Council, left vacant by the resignation of William K. Hatt, M. Am. Soc. C. E., to resume teaching at Purdue University, has been recently filled by the appointment of Charles M. Upham, Assoc. M. Am. Soc. C. E. Mr. Upham is qualified for his new work by virtue of extensive highway experience as Chief Engineer of both the Delaware and North Carolina State Highway Commissions. Further additions to the staff include Chester

A. Hogentogler, Assoc. M. Am. Soc. C. E., who is on leave of absence from the U. S. Bureau of Public Roads for the purpose of studying the economic value of reinforcing for concrete pavements, and, as Assistant to the Director, Samuel S. Steinberg, who was until recently Professor of Civil Engineering at the University of Maryland.

Methods of Determining Secondary Stress Compared

The subject of secondary stresses in structures is old yet ever new. In recent years the extensive studies and the invention of intricate instruments have stimulated the development of methods and the interest of engineers in this vital question. In the present issue of *Proceedings* the Society adds another important contribution to the literature on Secondary Stresses in the paper by Cecil V. von Abo, Jun. Am. Soc. C. E. This monograph is notable, aside from its timeliness, in the fullness and candor of its treatment. The paper presents a critical comparison of existing methods of determining secondary stresses with the object of establishing or disproving their relative superiorities. How well this purpose is accomplished will appear when members have had a chance to study the paper and offer discussions. It is fortunate that the Society is able to bring to public light this laborious and worth while study, which might otherwise have been doomed to comparative obscurity. This paper is but another reminder of the really valuable work being done by American Universities and by the younger members of the profession.

Another Addition to the Engineering Societies' Library Service

The Executive Committee of the Library Board has decided to adopt the policy of inter-library loans which is in use by the more important libraries of the country. The rules of the American Library Association for the conduct of such loans will be followed.

This will make it possible for Society members to borrow, through local, public, or college libraries, books that are rare or unusual or needed in research work, and that are not available through the regular lending service of the Engineering Societies' Library.

Members who wish to borrow books of this character should consult the local librarian, from whom the request should come. If it is feasible to grant the loan, the book will be sent to the local librarian for a limited time. Transportation expenses and insurance will be charged to the borrower library, which must assume all responsibility for the safe return of the book.

Each request for a loan will be considered on its own merits, and granted if it be possible without undue interference with the rights of other members. Periodicals will be lent only under unusual circumstances; for example, when the desired article is too long to photoprint at reasonable cost. Books that are extremely rare and those that are in daily use will not be lent.

Borrower libraries will be required to keep these books in their buildings and not lend them for home use; this regulation also applies to the local use of the Engineering Societies Library.

The Evolution of the Nautical Chart

This title accompanies a most illuminating article by E. Lester Jones, Assoc. M. Am. Soc. C. E., Director, United States Coast and Geodetic Survey. This booklet is attractive both as to form and contents; it is well illustrated by photographs and charts which illustrate the personal as well as the technical side of the Survey's work. A similar article by Col. Jones appeared in the *Military Engineer* for May-June, 1924.

Investigation of Power in Massachusetts

To the Associated Industries of Massachusetts goes the credit for a complete investigation of power possibilities in Massachusetts conducted during the past year. Disturbed by the lack of information on this subject, the Association has appointed a committee which included Charles T. Main, M. Am. Soc. C. E., as Chairman, and in its membership, D. C. Jackson, M. Am. Soc. C. E. Since February, 1923, this Committee has been at work, and in April, 1924, published a complete report of almost 200 pages regarding its findings. This discussion covered the question of the power requirement of the future and of the availability and cost of power from different possible sources. Much credit for this investigation is due to William F. Uhl and Frank M. Gunby, Members, Am. Soc. C. E., likewise to George C. Danforth and Karl R. Kennison, Members, Am. Soc. C. E., who were especially employed by the Committee.

Income Tax on Consulting Work for States or Municipalities

A test case has been brought in the District Court of the United States in Massachusetts to determine the status, from the standpoint of income tax requirements, of fees received by consulting engineers in connection with work done for States and municipalities. This case (*Leonard Metcalf et al. v. John J. Mitchell, Collector*) was brought in the interest of engineers with the financial assistance of several members of the Institute of Consulting Engineers, and involves specifically the tax paid on income from various work of the firm of Metcalf & Eddy.

According to the War Revenue Act of 1917, exemption as to income tax is made in the case of officers and employees of the United States or of any State or of any local sub-division of any State for compensation received by them as officers or employees. The question, therefore, involves the relation of the consultants who render services the same as or similar to these regular employees.

In his decision, Judge Lowell stated that if an appointment as a regular employee "were made clearly as a subterfuge in order to defeat the tax, it would not be valid, and the true distinction seems to be that States or public officials thereof cannot be taxed whereas private persons, although rendering similar services, may be taxed". Therefore, he decided against the plaintiffs in the general case with two exceptions in which they were regularly appointees of the municipality. It is contemplated that this case will be further appealed to the Supreme Court.

**Outline of the Policy of the Four National Engineering Societies
Relative to Co-ordination of Local Section Activities, as
Approved by the Board of Direction, June 16, 1924.**

Civil, Mining, Mechanical, and Electrical Engineers have much in common. Individually or in groups they have given unstinted service to City, State, and Nation, in many diverse causes. In view of the fact that such activities have been most effective when most closely co-ordinated, it is believed that in each community duplication of effort should be eliminated and opportunity afforded for concerted action on questions which concern engineers either in their public or professional life.

Several plans for such co-operation have been adopted with good results. The experience secured has indicated that each locality will find it necessary to provide special arrangements with regard to certain provisions of any general plan of co-ordination of Local Section activities, but, in the main, it is believed that the following fundamental suggestions may be utilized in almost any part of the United States. Briefly the policy is as follows:

- 1.—Every engineer should be encouraged to become a member of the local engineering society in the community in which he lives.
- 2.—As each engineer develops, he will generally wish to join that National engineering society which best meets his needs.
- 3.—Co-ordinated with the local engineering society there should be sections organized for as many different groups of the Engineering Profession as are represented in that community. The members of National societies residing in that community should be members of these local sections and be eligible as officers of them regardless of holding membership in the local society. Members of the local society should be privileged to attend meetings of these sections, but may not be privileged to hold office in the section or to vote for the officers of the section.
- 4.—Preferably, the respective presidents or chairmen of the local sections, either by election or *ex-officio*, should be members of the Board of Government of the local society, provided they hold membership in it, thus encouraging a broad management of the society.
- 5.—The chairman of the program committee of the local society with the aid of the chairmen of the program committees of the sections should lay out the general annual program for the year.
- 6.—Nothing in this arrangement should be understood as interfering with the local sections having the privilege at any time of calling special meetings of their section to which they may invite only members of the National societies or their section, it being understood, however, that such meetings are to be financed entirely by the section calling them.
- 7.—A paid representative to serve all the sections may be engaged to handle office routine, issue notices, arrange for meetings, and handle employment matters. Preferably, he should be a member of the staff of the local society assigned to this work.

To comment briefly on certain features of this policy:

Every engineer should become a member of the local engineering society or club, and become identified with its activities. These activities are certain to be concerned with the engineering features of the public work of the community. The requirements of membership in the local society or club are usually so broad as to admit to membership all engineers who have an interest in the activities of the organization.

Professional recognition of engineering status can best be secured through membership in a National engineering society devoted to some branch of the profession. Each of the National engineering societies will maintain the strictest requirements for admission. It naturally follows that sooner or later those members of the local society or club who are properly qualified will seek membership in the National societies and that the more loyal and efficient they are in the local societies, the more active they will become in the leadership of the National societies.

The experience of local societies or clubs and of local sections of National societies that have attempted to conduct their activities independently has emphasized the benefits arising from professional unity. On the other hand the experience in a number of places has proven that professional unity can be accomplished without loss of identity or autonomy. The skeleton of such an organization is that the local society or club assumes the leadership and that the local sections of the National societies serve as the divisions of the local organization. The topics for discussion at meetings of the local organization may properly emphasize general subjects of interest to all engineers and as a broad policy the principal aim of the local society should be the advancement of the profession by devoting the talents of its members to the general good of the community through the discussion of the engineering features of local affairs. The local society and the respective local sections of the National societies should co-operate in providing the technical program. In many places each local section is asked in turn by the local society to take charge of the program one or more evenings. In such cases a well established local society with a permanent staff can materially assist the officers of a local section who hold office usually only a year at a time. In this way the local sections will enable the profession to render a more effective service to the public, and thus increase the prestige of the profession to a greater extent, than would be the case if they attempted to hold independent meetings with attendance largely restricted to their own membership. With the larger audience assured by the inclusion of members of the local society and the other local sections of National societies, the program committee can attract speakers of wider reputation, and can thus raise the standard of the meetings. Furthermore, with a co-ordinated program the financing of a season's activities for all groups is simplified, because each group is called on to provide only a few meetings. The combined program provides a series of meetings more important and interesting than could be undertaken by any group independently.

One of the principal difficulties has been the financing of a paid secretary to take charge of the many details which such a co-operative plan may make necessary. It is hoped that this problem may in part be solved through a development of the Employment Service of the National Societies. For some time those in charge of the Employment Service have been making a study of how to effect this. Through the co-operative employment plan adopted in September, 1923, it may be possible to extend the Employment Service by opening branch offices in other cities. If these branch offices of the Employment Service have paid personnel in charge, it is believed that the work of the employment manager will be more successfully accomplished if he serves also as the joint representative of the local sections of the respective National engineering societies, and preferably as member of the staff of the local engineering society or club. To make this plan fully effective the local society or club should preferably merge its Employment Service with that of the local office of the National Societies' service. The voluntary contributions which members securing benefits from the Service are invited to make are so small that they do not find them burdensome.

The foregoing plan should tend to develop a united membership on questions of engineering interest, and to correlate local group activity which is now sometimes overlapping and often even interfering. It should promote acquaintanceship for the furtherance of technical activity and increased *esprit de corps* among members of the organizations co-operating.

In those cities where no permanent headquarters have been established such a plan will help make it possible to provide them at an early date and offer facilities for meetings, a reference library, employment service, and correspondence facilities for members.

This program would naturally result in each National society striving to do its share of the work of advancing the interests of the Engineering Profession under the general initiative of the local engineering society. However, the identity and individuality of the local societies and of the local sections should be scrupulously maintained while the co-operative plan is in effect.

It is not expected that this plan can be consummated without some effort by every one, but the fulfillment of it is believed to be well worth while. At present, in many places the work of the local societies and local sections burden a small number of men. A development such as has been outlined in the foregoing will promote the general activities of the groups combined, will eliminate duplication of effort, and bring about results with less expense and labor.

A few of the advantages to the local society include:

- 1.—The local sections of the National societies are encouraged to co-ordinate the expenditure of their funds with those of the local society.
- 2.—Speakers of prominence are attracted.
- 3.—Opportunity is provided for co-operation in State and National engineering activities as part of the National Engineering Profession.
- 4.—The National societies urge on every engineer the sphere and usefulness of the local society.

5.—Through the various local sections the community is represented at National conventions by the arrangement of the National society which provided opportunity for each local section to have an official delegate to the annual Sections' Conference.

6.—It is also suggested that whenever the local societies in co-operation with the local sections of National societies can provide a suitable place, each of the National societies will constitute the local headquarters as a depository for a set of its *Transactions*.

7.—With local professional unity assured, a basis is provided for State-wide co-operation by co-ordinating all local groups on State lines, a development which may ultimately be carried out to its logical conclusion on a National scale.

The foregoing plan should tend to develop unified membership on questions of engineering interest and to coordinate local group activity which is now sometimes overlapping and often interfering. It should promote acquaintance for the furtherance of technical activity and increased spirit of co-operation among members of the organizations so operating.

In those cities where no permanent headquarters have been established such a plan will help make it possible to provide them at an early date and offer facilities for meetings, a reference library, equipment, etc., and corresponding ones facilities for members.

This program would naturally result in each National society striving to do its share of the work of advancing the interests of the Engineering Profession under the general initiative of the local engineering society. However, the identity and individuality of the local societies and of the local sections should be recognized and maintained while the co-operative plan is in effect.

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3.—Opportunity is provided for co-operation in State and National engineering activities as part of the National Engineering Profession.

4.—The National societies urge on every engineer the sphere and usefulness of the local society.

Local Sections*

Buffalo.—July 9, 1924. The following officers were elected: President, John Patrick Kelly; Vice-President, Solon J. Stone; Secretary, George Franklin Prong.

New York.—The following report which was adopted on April 3, 1924, by the Joint Committee on Structural Safety, representing Architectural and Engineering Societies of the New York Metropolitan District, was presented at the Annual Meeting of the Section on May 21, 1924. Owing to the wide interest shown in the report the Committee on Technical Activities and Publications of the Society at its meeting of July 26, 1924, ordered its publication in *Proceedings*. The report is as follows:

"REPORT OF

JOINT COMMITTEE ON STRUCTURAL SAFETY

"To:

NEW YORK CHAPTER, AMERICAN INSTITUTE OF ARCHITECTS,
NEW YORK SECTION, AMERICAN SOCIETY OF CIVIL ENGINEERS,
BROOKLYN CHAPTER, AMERICAN INSTITUTE OF ARCHITECTS,
NEW YORK CHAPTER, AMERICAN ASSOCIATION OF ENGINEERS,
NEW JERSEY CHAPTER, AMERICAN INSTITUTE OF ARCHITECTS,
BROOKLYN ENGINEERS CLUB,
NEW JERSEY SOCIETY OF ARCHITECTS,
NEW YORK SECTION, AMERICAN RAILWAY BRIDGE AND BUILDING ASSOCIATION,
NEW YORK SOCIETY OF ARCHITECTS,
AMERICAN INSTITUTE OF CONSULTING ENGINEERS.

"At a meeting of architectural and engineering societies held in New York on Oct. 17, 1923, it was decided that a joint committee of the two professions should be created to report on means of furthering structural safety in building. Consideration was given at that meeting to a report on the same subject rendered to the New York Section of the American Society of Civil Engineers in April, 1923, by a special committee, and the conclusion was reached that the proposed joint committee should carry the subject further. Representatives were subsequently named by the societies participating in the meeting and by other organizations invited by the committee itself to join in its deliberations.

"Your Joint Committee on Structural Safety thus constituted has held seven conference meetings, and has reached unanimous conclusions. It has adopted and hereby requests your endorsement of the following statement of principles governing safety in building construction, namely:

"1. Safety in building construction would undoubtedly be assured as effectively as is humanly possible if all those having part in it were competent, honest, and actuated by a conscientious regard for the protection of the safety of others. Experience has, however, demonstrated that laws and regulations are necessary to restrain incompetent persons who seek to carry out building operations.

"2. Public authorities have therefore been created and laws enacted to control building operations, but it has been found practically impossible for such authorities to control adequately the design and execution of the great number of building operations going on at the same time in populous cities. Further, if it were possible to expand and strengthen the public control over

* For list of Local Sections, Officers, Rules, etc., see 1924 Year Book, p. 27.

all these operations effectively, it would be undesirable to do so as it would require excessive taxation and at the same time would tend to place the burden of responsibility for safe building on the public authorities rather than where it should rest, namely, on the persons carrying out the work.

"3. The owner who seeks a permit to build or alter a building does so for his own benefit, and should be required to prove in advance his regard for the safety of the public by presenting adequate plans and specifications prepared by a competent designer, and as further evidence of good faith should be required to undertake that the execution of these plans will be placed under the continuous supervision and control of the designer; that every part of the work itself will be entrusted to competent contractors and workmen; and that only proper materials will be used.

"4. The structural safety of a building is directly dependent on its structural stability, and this can only be assured if the foundations and the entire structural framework are designed and built in accordance with the recognized principles of structural design, the known properties of materials, and the established methods of good construction. As a logical sequence, structural safety will be best assured if the planning and superintendence of building work is restricted to architects and structural engineers, whose education and training are intended to fit them for just such service. To insure as far as possible the competency of such professional men, advantage should be taken of the existing laws covering the registration of architects and the licensing of professional engineers by the State authorities.

"5. The placing of competent professional men in responsible charge of the planning and execution of building work can only be effective in securing public safety if they are given full authority and do in fact control the work entrusted to them. The designer must therefore not only control the preparation of all plans and specifications covering structural features on which stability is dependent, but must check and approve all shop drawings and working drawings prepared by others before they are followed in construction; and he must, in fact, control, personally or by his agents, the execution of the plans and specifications and see that they are lived up to faithfully, and that the entire work at every stage of its progress is carried on with due regard for the safety of the public and the workmen themselves. When clothed with such authority, however, these professional men should carry a corresponding definite and inescapable responsibility.

"6. For the protection of the public, as a voucher of performance, the owner should be required, before use of the completed building is permitted, to obtain and file with the proper public authorities a certificate signed by the designer in affidavit form, stating that the work throughout has been executed in accordance with the plans and specifications, and that, to the best of his knowledge and belief, the completed building complies with all requirements of law and is structurally safe for the use specified.

"7. Failure of the owner to comply in good faith with the letter or spirit of the requirements above stated should be made a penal offense and prosecuted as such; and evidence of incompetence or dishonesty on the part of the designer should be sufficient cause for legal action for the revocation of his license or registration, and, where justified, for his prosecution for perjury.

"8. General recognition of the principles above stated and the enactment of a law to make them effective should materially strengthen the authority and efficiency of bureaus of buildings and other public authorities intended to control building operations, and should in no way weaken or diminish their present prerogatives.

"9. Building codes as now written are a selection of minute rules attempting to cover in detail all elements of building construction. It is manifestly

impracticable to do this in a way to insure structural safety effectively in the great variety of situations met in building operations. When design and superintendence of construction are definitely restricted to competent professional men, these codes may be written on simpler and more effective lines, and the responsibility for safe construction thereby more definitely placed on the owner and his professional agent.

"As a recommendation consistent with belief in the above principles, your representatives have adopted the following resolution, which is hereby submitted for consideration and discussion, namely:

"Resolved, That it is the judgment of this Joint Committee on Structural Safety that a law should be prepared to embody the following requirements, governing the granting of permits and the execution of all building operations.

"I. The owner shall be the applicant for the building or construction permit and shall be required to accompany his application for such permit with the following:

"1st Adequate plans and specifications prepared and signed by a competent registered architect or a licensed professional engineer experienced in structural design, hereinafter called the designer.

"2d A definite undertaking executed in legal form stipulating that, if the permit is issued to the applicant, he will have all working or shop drawings covering parts and details essential to the stability of the building and required to supplement the plans which accompanied his application, fully checked, approved and signed by the designer; that he will place the execution of the work under the direct supervision and continuous control of the designer; and that he will further undertake, with the co-operation of the designer and by employing only competent contractors and workmen, to perform faithfully the work proposed in strict accordance with the plans and specifications, in compliance with all requirements of law, and with due regard to public safety.

"II. Before a certificate of occupancy is issued by a Bureau of Buildings, or by any State or local authorities having jurisdiction, the owner shall furnish to such authorities a duly executed certificate, signed by the designer, stating that he has faithfully supervised the entire work of construction, that it has been executed in accordance with the plans, specifications and working drawings duly signed by him, and that to the best of his knowledge and belief the finished work complies with all the requirements of law and is structurally safe for the use specified.

"III. Failure on the part of the owner to comply with any of the above specified requirements shall be regarded as presumptive evidence of a violation of law, constituting a penal offence, and shall be punishable as such.

"IV. If at any time after the certificate of the designer has been filed, conclusive evidence is furnished to the State licensing authorities that any statement in such certificate was false and intended to deceive, these authorities shall immediately take the necessary legal steps to have the signer put on trial for perjury, shall forthwith have his name stricken from the list of registered architects or licensed professional engineers, and shall give their action effective publicity.

"V. It should be made possible at any time during the process here outlined to substitute a new owner for the original owner, provided that the new ownership is duly recorded on the original papers by affidavit and such new owner assumes all the obligations that would have been his had he signed the original papers. Likewise, a new registered architect or licensed professional engineer having structural experience may be substituted for the original designer of record provided that a like transfer of all obligations shall be recorded

on the original papers and these obligations be assumed by the new registered architect or licensed professional engineer as if he had signed the original plans.

"WM. P. BANNISTER,
F. A. BURDETT,
GEORGE S. DREW,
J. H. EDWARDS,
JAMES B. FRENCH,
HERBERT C. KEITH,
ROBERT D. KOHN,
AUBREY WEYMOUTH,

"OLIN H. LANDRETH,
JOSEPH A. MCCARROLL,
IRA W. MCCONNELL,
C. B. MEYERS,
WM. CULLEN MORRIS,
F. E. SCHMITT,
D. EVERETT WAID,

"Joint Committee"

San Francisco.—June 24, 1924. The following subjects were discussed: "Shoo-fly Construction to Handle Railroad Traffic in Eliminating Tunnels"; "Construction and Operation of Rock-Crushing Plants to Furnish Crushed-Rock Ballast for Railroad Ore"; and "Construction and Operation of Modern Railroad Cross-Tie Creosoting Plants". Mr. W. H. Kirkbride, of the Southern Pacific Company, presented a paper on "Construction of a 400-Foot Railroad Bridge Over the Colorado River at Yuma". Attendance 54.

June 28, 1924. Inspection trip to the Bay Division of the Hetch-Hetchy Aqueduct. Attendance 66.

Engineering Societies Library

The services of the Engineering Societies Library are available to all members who wish searches, copies, translations, etc., or advice on technical literature. A collection of modern books is also available for loan to members in North America, at moderate rentals. Correspondence should be addressed to the Director, Engineering Societies Library, 29 West 39th Street, New York, N. Y., who will gladly give information concerning the charges for the various kinds of work. A more comprehensive statement in regard to this matter will be found on pages 49 and 50 of the Year Book for 1924.

Book Notices*

(July 1 to July 31, 1924)

Elasticity and Strength of Materials Used in Engineering Construction; Section IV; Columns. By C. A. P. Turner. Minneapolis, Minn., The Author, 1924. 134 pp., illus., diagrams, tab. 9 x 6 in., cloth. \$5.00.

In this volume, consisting of Chapters 17 to 22 of the complete work, the author discusses the combined stresses in columns, the economic theory of steel columns, the influence of furnace practice and temperature for rolling on the physical properties of steel, the determination of the quality of steel, economic practice as determined by tests of large bridge columns, reinforced concrete columns, eye-bars, pins, and rivetted joints.

Handbuch des Wasserbaues. By Hubert Engels. Third Edition. Leipzig, Wilhelm Engelmann, 1923. 2 v., illus., diagrams, tab., 10 x 7 in., cloth. 61 Schw. fr.

These two large volumes present an interesting attempt to cover the entire subject of hydraulic engineering in a unified way, with proper proportion for each division of the subject. The exhaustion of the two previous editions in less than eight years, shows that the book has met a real demand. In general plan and style this work is similar to the well-known "Handbuch der Ingenieurwissenschaften". The text is copiously illustrated with clear drawings and each subject is provided with a good list of references. The book is divided into ten main divisions: The Occurrence and Movement of Waters; Hydrology; River Works; Dams; Protection of Land; Agricultural Hydraulic Works; Navigation Works; Ship Locks; Canalization of Streams and Ship Canals; Harbors.

Additions to the Reading Room

Practical Mathematical Analysis. By H. Von Sanden. With Examples by the Translator, H. Levy. N. Y., E. P. Dutton & Co. [1913]. 195 pp., diagrams, 9 x 6 in., cloth. \$4.50.

The author states that all the methods discussed in this book are developed with the principal object of providing means whereby the desired results may be expressed ultimately in numerical form. In the selection and arrangement of the material, preference has been given to those methods which are capable of general application in the teaching of mathematics. The treatment of empirical functions is sufficiently extensive to meet the requirements of students of technical colleges.

Structural Engineering. By Joseph Husband, M. Am. Soc. C. E., and William Harby. Third Edition, Revised and Enlarged. Lond., Longmans, Green and Co., 1924. 458 pp., diagrams, 8½ x 5½ in., cloth. 16 shillings. (Donated by Professor Husband.)

The authors state that they have endeavored in this volume to deal with the design of the more ordinary and commonly occurring structures. After stating the main outlines of the theory involved they have extended its application to the practical design of a considerable variety of structures and structural details. Wherever possible, numerical data and arithmetical, in preference to analytical, methods have been adopted and the use of mathematical formulas has been avoided.

* The statements made in these notices are taken from the books themselves, and this Society is not responsible for them. Unless otherwise specified, the books in this list have been donated by publishers.

Current Civil Engineering Literature

Key to Abbreviated References to Publications Indexed*

Abbreviated References.	Publication.	Place.
Am. C. Inst.....	American Concrete Institute, Proceedings (Y.)	Detroit
A. I. E. E.....	American Institute of Electrical Engineers Journal (M.)	New York
A. R. E. A.....	American Railway Engineering Association, Proceedings (Y.)	Chicago
A. S. T. M.....	American Society for Testing Materials, Proceedings (Y.)	Philadelphia
Am. Soc. C. E.....	American Society of Civil Engineers, Proceedings (M.)	New York
Am. Soc. Mun. Impvts..	American Society for Municipal Improvements, Proceedings (Y.)	New York
Am. W. W. Assoc....	American Waterworks Association, Journal (Bi-M.)	Baltimore
Am. Wood Pres. Assoc...	American Wood Preservers Association, Proceedings (Y.)	Chicago
Am. P. et C.....	Annales des Ponts et Chaussées (Bi-M.)	Paris
Ann. T. P. Belg.....	Annales des Travaux Publics de Belgique (Bi-M.)	Brussels
Assoc. Ing. Gand.....	Annales de l'Association des Ingénieurs sortis des Ecoles Spéciales de Gand (Q.)	Ghent
Bost. Soc. C. E.....	Boston Society of Civil Engineers, Journal (M.)	Boston
Can. Engr.....	Canadian Engineer (W.)	Toronto
Cem. Eng.....	Cement and Engineering News (M.)	Chicago
Cornell C. E.....	Cornell Civil Engineer (M.)	Ithaca
Dock & Harbour.....	Dock and Harbour Authority (M.)	London
Eng.....	Engineering (W.)	London
Eng. & Contr.....	Engineering and Contracting (W.)	Chicago
Eng. Inst. Can.....	Engineering Institute of Canada, Journal (M.)	Montreal
Eng. N. R.....	Engineering News-Record (W.)	New York
Engrs. Soc. Pa.....	Engineers' Society of Pennsylvania, Journal (M.)	Harrisburg
Engrs. Soc. W. Pa.....	Engineers' Society of Western Pennsylvania, Journal (M.)	Pittsburgh
Engr.....	Engineer (W.)	London
Engrs. & Eng.....	Engineers and Engineering, Engineers' Club of Philadelphia (M.)	Philadelphia
Gen. Civ.....	Le Génie Civil (W.)	Paris
Gesund. Ing.....	Gesundheits Ingenieur (W.)	Munich
Inst. C. E.....	Institution of Civil Engineers Minutes of Proceedings (Q.)	London
Inst. Mun. & Co. Engrs.	Institution of Municipal and County Engineers, Journal (W.)	London
Int. Ry. Cong. Assoc....	International Railway Congress Association, Bulletin (M.)	Brussels
Land. Arch.....	Landscape Architecture (M.)	Harrisburg
Mech. Eng.....	Mechanical Engineering (M.) Journal of the American Society of Mechanical Engineers	New York
Mil. Engr.....	Military Engineer (M.)	Washington
Min. & Metal.....	Mining and Metallurgy (M.) American Institute of Mining Engineers	New York
Mun. & Co. Eng.....	Municipal and County Engineering (M.)	Indianapolis
N. E. W. W. Assoc....	New England Water Works Association, Journal (M.)	Boston
N. Y. R. R. Club.....	New York Railroad Club, Proceedings (M.)	Brooklyn
Oest. Ing. Arch. Ver...	Oesterreichischer Ingenieur und Architekten Verein, Zeitschrift (F.)	Vienna
Power.....	Power (W.)	New York
Rev. Gen.....	Revue Générale des Chemins de Fer (M.)	Paris
Ry. Age.....	Railway Age (W.)	New York
Ry. Eng. & Main.....	Railway Engineering and Maintenance (M.)	Chicago
Ry. Rev.....	Railway Review (W.)	Chicago
Schw. Bauz.....	Schweizerische Bauzeitung (W.)	Zurich
Scl. Am.....	Scientific American (M.)	New York
Soc. Ing. Civ. Fr.....	Société des Ingénieurs Civils de France, Mémoires et Comptes Rendus (Q.)	Paris
Ver. deu. Ing.....	Verein deutscher Ingenieure, Zeitschrift (W.)	Berlin
West. Ry. Club.....	Western Railway Club, Proceedings (M.)	Chicago
West. Soc. Engrs.....	Western Society of Engineers, Journal (M.)	Chicago
Zelt. Bau.....	Zeitschrift für Bauwesen (Q.)	Berlin
Z. d. Bauver.....	Zentralblatt der Bauverwaltung (W.)	Berlin

* Y = Yearly; Q = Quarterly; M = Monthly; F = Fortnightly; W = Weekly.

A. Applied Sciences.**a. Processes of Calculation**

Formulas for Volumes and Areas of Pipe Intersections. George Paaswell. Eng. N. R. July 3, '24.

B. Applied Mechanics**a. Mechanics of Solids (Strength of Materials)****2. Elastic Solids**

Stresses Due to a Loaded Surface When Earth is Treated as an Elastic Solid.* S. D. Carothers. Eng. Serial beginning July 4, '24.

Wasserdurchfluss durch Mönche.* (Discharge of Water Through Short Conduits.) K. Pfeiffer. Z. d. Bauver. June 18, '24.

4. Riveted Systems

Wood Stave Pipe Lines and Penstocks.* J. B. Holderoft. Can. Engr. July, '24.

6. Heterogeneous Solids (Reinforced Materials)

Should Reinforcement Embedment Vary with Size of Bar? A. S. Woodle, Jr. Eng. N. R. June 26, '24.

Calcul des Plafonds Nervurés en Béton Armé.* (Design of Ribbed Ceilings in Reinforced Concrete.) Václav Tesar. Gen. Civ. June 14, '24.

b. Hydraulics**2. Physical Hydraulics**

Beiträge zur Frage der Geschwindigkeitsformel und der Rauheitszahlen für Ströme, Kanäle und geschlossene Leitungen.* (Contribution to the Question of the Velocity Formula and the Roughness Coefficient for Streams, Channels and Closed Conductors.) A. Strickler. Schw. Bauz. June 7, '24.

3. Industrial Hydraulics

Hydroelectric Practises and Equipment on the Pacific Coast.* Svend Barfoed. A. I. E. E. July, '24.

Water Powers of Canada.* J. B. Chailles. Eng. Inst. Can. July, '24.

The Generation of Hydro-Electric Power in Canada.* H. G. Acres. Eng. Inst. Can. July, '24.

Ice Troubles in Norwegian Water-Power Plants. Arvid Ruths.* (Paper read before World Power Conference.) Eng. July 11, '24.

Modern Tendencies in Water-Wheel Design. Hjalmar O. Dahl. (Paper read before World Power Conference.) Eng. July 11, '24.

Power Possibilities of the South Fork, Flathead River.* Benjamin E. Jones and Edward E. Jones. Eng. N. R. July 17, '24.

High, Arch-Type Dam Built in Southern Spain.* M. E. Wegenstein. Eng. N. R. July 24, '24.

Entnahme und Reinigung von Oberflächenwasser für industrielle Anlagen.* (Collection and Purification of Surface Water for Industrial Works.) Alexander Vogt. Ver. deu. Ing. June 14, '24.

c. Pneumatics**3. Industrial Pneumatics**

Die experimentelle Untersuchung des pneumatischen Fördervorganges.* (Experimental Investigation of the Process of Pneumatic Conveying.) Gasterstadt. Ver. deu. Ing. June 14, '24.

Wege zur Verbesserung der Druckluftwirtschaft auf Bergwerken.* (Methods for Improving the Utilization of Compressed Air in Mines.) Heinrich Reiser. Ver. deu. Ing. June 21, '24.

C. Materials of Construction and General Processes**a. Lime, Cement, Mortar, Concrete, Brick, Bitumen, etc.**

Classifying Asphalt Sands by Graphical Method.* W. C. D. Haarman. Eng. N. R. June 26, '24.

Efflorescence in Concrete Products. A. S. Bowes. Cem. Eng. July, '24.

Synchronous Motors for Cement Mill Drive.* G. E. Cassidy. Cem. Eng. July, '24.

Aluminous Cement in Practice. T. J. Guilritte. Can. Engr. July 8, '24.

Some Requirements in the Study of Portland Cement. Thaddeus Merriman. Eng. N. R. July 17, '24.

Ciment Fondu oder Al-Zement. (Fused Cement or Al-Cement.) Z. d. Bauver. June 4, '24.

L'Influence de la Quantité d'Eau de Gachage sur le Echauffement, Pendant la Prise des Ciments Aluminex.* (The Influence of the Amount of Mixing Water on the Heating of Aluminous Cements During Setting.) J. Bertet. Gen. Civ. June 7, '24.

Beton in Meerwasser.* (Concrete in Sea Water.) Z. d. Bauver. Mar. 26, '24.

b. Metals

Les Essais de Torsion des Métaux. Déformations Élastiques et Déformations Permanentes.* (Torsion Tests of Metals. Elastic Deformations and Permanent Deformations.) J. Seigle and F. Cretin. Gen. Civ. Serial beginning June 7, '24.

Ueber die Entwicklung der Gusseisensorten für den Maschinenbau.* (On the Development of the Varieties of Cast Iron for Machinery.) Hellmuth Koch. Schw. Bauz. May 31, '24.

Elektrische Stahlprüfungs-Verfahren von B. D. Enlund.* (B. D. Enlund's Electric Process for Testing Steel.) Bengt Kjerrman. Ver. deu. Ing. June 14, '24.

f. Rock Excavation, Mining, Rock Removal

- Flotation of Gold-Copper Ores at Tul Mi Chung, Korea.* R. J. Lemmon. (Abstract of paper read before Inst. of Min. & Metal.) Min. & Metal. July, '24.
Springing Bore Holes Correctly. Charles S. Hurter. Cem. Eng. July, '24.

g. Execution of Works. Specifications**2. Of Concrete**

- Concrete Work at Wilson Dam, Muscle Shoals.* R. P. Brown (Paper read before National Lime Assoc.) Eng. & Contr. July 9, '24.
Die Wiederherstellung der brandbeschädigten Fabrik Sarotti durch das Betonspritzverfahren.* (Reconstruction of the Fire-Damaged Sarotti Factory by the Sprayed Concrete Process.) E. G. Friedrich. Schw. Bauz. June 14, '24.

4. Of Metal

- Repairing Steel Floor Framing Damaged by Corrosion.* Eng. N. R. July 24, '24.

h. Foundations

- Novel Abutment Effects Economy in Concrete Bridge.* Arthur G. Hayden. Eng. N. R. July 3, '24.
Ueber die Ursachen der Verbiegungen der steinernen Pfeiler am Sitterviadukt der Bodensee-Toggenburgbahn.* (On the Reason for the Bending of the Stone Pier on the Sitter Viaduct of the Lake Constance-Toggenburg Road.) M. Ros. Schw. Bauz. Serial beginning June 21, '24.

i. Piles and Pile Driving

- Steel Sheetpiling in Salt Water at Havana, Cuba.* Eng. N. R. June 26, '24.

1. Construction Machinery and Tools—Drainage

- Care and Maintenance of Rock Drills.* Eng. & Contr. June 18, '24.

x. Miscellaneous

- How a Contractor Schedules Operations for a Large Office Building.* W. J. Lynch. West. Soc. Engrs. June, '24.
Materials and Specifications Discussed at Atlantic City. (Annual Meeting of Am. Soc. for Testing Materials.) Eng. N. R. July 3, '24.

D. Highways**c. Construction**

- Results of Recent Impact Tests on Concrete Pavement Slabs. Leslie W. Teller. (From Public Roads.) Mun. & Co. Eng. June, '24.
Experience with "Black Base" Construction in Mercer County, N. J. H. F. Harris. Mun. & Co. Eng. June, '24.
Design and Construction of Sand Asphalt Pavements.* Sam. R. Murray. Mun. & Co. Eng. June, '24.
Successful Trial of White Joint Filler for Concrete Road Cracks. L. G. Carmick. (From Public Roads.) Mun. & Co. Eng. June, '24.
Bituminous Treatment Limitations.* I. W. Patterson. (Paper read before Univ. of Michigan.) Can. Engr. June 17, '24.
Asphaltic Concrete Pavement Construction. R. H. Parsons. (Paper read before Can. Good Roads Assoc.) Can. Engr. July 8, '24.
Four-Mile Causeway Carries State Road Over Swamp.* James Pinnell and J. L. Parker. Eng. N. R. July 10, '24.
Notes on the Construction of the New Kingston By-Pass Road.* W. P. Robinson. Inst. Mun. & Co. Eng. July 15, '24.
Construction of Concrete Pavements. H. C. Boyden. (Paper read before Can. Good Roads Assoc.) Can. Engr. July 15, '24.
Refined Tar in Highway Construction.* John S. Crandell. Can. Engr. July 15, '24.
New Type of Profilometer for Highways.* H. F. Clemmer. Can. Engr. July 22, '24.
Spiral Curves Cut Costs of North Carolina Road Work.* Charles M. Pritchett. Eng. N. R. July 24, '24.

d. Maintenance

- Method for Maintaining Gravel Roads. (Paper read before Canadian Good Roads Assoc.) Paul D. Sargent. Can. Engr. July 1, '24.
Establishing a Cost-Keeping System.* J. L. Boulanger. (Paper read before Canadian Good Roads Assoc.) Can. Engr. July 1, '24.
Modern Methods of Road Maintenance and Construction. Thos. Somers. Inst. Mun. & Co. Engrs. July 15, '24.

f. Tree Planting

- Tree Planting in Highways and Suburban Areas.* R. Muir Morton. Inst. Mun. & Co. Engrs. July 1, '24.

h. Vehicles. Automobiles. Traffic

- Fixing the Ultimate Width of Highway Right-of-Way in Pennsylvania. William H. Connell. Mun. & Co. Eng. June, '24.
What the Cook County Highway Traffic Survey Covers. Eng. N. R. July 3, '24.
The Control of the Use of Highways.* William H. Connell. (Paper read before Can. Good Roads Assoc.) Can. Engr. July 3, '24.

Safety Traffic Signals on Highways. R. J. Durley. (Paper read before Can. Good Roads Assoc.) Can. Engr. July 22, '24.
Elektrische Automobilstrecke mit Oberleitung Modene-Lanslebourg (Savoyen). (Modena-Lanslebourg (Savoy) Electric Automobile Route with Overhead Conductor.) Schw. Bauz. June 7, '24.

x. Miscellaneous

Bituminous Macadam Roads for Heavy Traffic.* (Paper read before Conference on Highway Eng.) Eng. N. R. June 26, '24.
Some General Notes on the Great West Road.* A. Dryland. Inst. Mun. & Co. Engrs. July 1, '24.
Good Roads Convention at St. Andrews.* Can. Engr. July 1, '24.

E. Bridges, Viaducts, and Arches

a. Timber Bridges and Viaducts

Design and Construction of Jamaica Bay Boulevard, Borough of Queens. Frank W. Skinner. Mun. & Co. Eng. July, '24.

b. Iron or Steel Bridges and Viaducts

Erecting a Bridge in Palestine by Longitudinal Rolling.* P. W. Etkes. Eng. N. R. July 3, '24.
Steel Viaduct Built Under Traffic Replaces Old Timber Spans.* Eng. N. R. July 10, '24.
Cantilevering a Heavy Bridge Span in Northern Quebec.* J. P. Chapleau and C. M. Goodrich. Eng. N. R. July 17, '24.

d. Concrete and Reinforced Concrete Bridges and Viaducts

Design and Construction of the Hill-to-Hill Bridge, Bethlehem, Pa.* Frank W. Skinner. Mun. & Co. Eng. June, '24.
Big Four Cutoff Involves Monumental Bridge.* Ry. Age July 19, '24.
Neue Eisenbeton-Bogenbrücke über die Seine bei Saint-Pierre-du-Vauvray (Eure). (New Reinforced Concrete Arch Bridge Over the Seine at Saint-Pierre-du-Vauvray, Eure.) Schw. Bauz. June 7, '24.

f. Suspension Bridges. Transfer Bridges

Rebuilding the First Budapest Suspension Bridge. Joseph Beke. Eng. N. R. June 26, '24.

g. Swing, Bascule, Lift, Floating, Oscillating Bridges; Travelling Cranes

Completion of Johnson Street Bridge.* Frank H. Allwood. Can. Engr. June 24, '24.

x. Miscellaneous

B. & O. Replaces Bridges of Historic Interest.* Philip George Lang, Jr. Ry. Age July 26, '24.
Notes on the Construction of Railway Bridges Over the Rhine.* R. Desprets. Int. Ry. Cong. Assoc. July-Aug., '24.

F. Inland Waters

b. Canals (General articles)

Deep Canal has Curious Effect on Salt Content of Shallow Lake.* Eng. N. R. July 3, '24.

c. Regulation of Waterways—Volume of Discharge, Freshets, Floods, Soundings

Spring Run-off—Its Cause and Intensity.* J. C. D. Taylor. Can. Engr. July 22, '24.
Keeping the Mississippi within Bounds.* R. P. Howell. Mil. Engr. July-Aug., '24.

d. Diverting Dams. Locks. Lifts. Elevators. Inclined Planes

New Type of Canal Lock Gate Developed in Sweden.* Lars Lawski. Eng. N. R. July 24, '24.
Der Einfluss von Talsperren auf Eisgänge. (The Influence of Dams on Ice Discharge.) Kriege. Z. d. Bauver. June 11, '24.

g. Consolidation of Banks, Leakage, etc.

L'Aménagement des Rivières Américaines au Moyen d'Epis.* (Regulation of American Rivers by Means of Jetties.) P. Caufourier. Gen. Civ. June 21, '24.

G. Maritime Works

c. Vessels and Maritime Navigation. Lighthouses and Buoys. Various Signals

Ship Design.* John Biles. (Paper read before Inst. of Naval Architects, Inst. Engrs. & Shipbuilders in Scotland and Northeast Coast Inst. Engrs. & Shipbuilders.) Eng. June 27, '24.
Umsteuerbare und nichtumsteuerbare Schiffsdieselmotoren. (Reversing and Non-Reversing Marine Diesel Engines.) M. W. Gerhards. Ver. deu. Ing. May 31, '24.

g. Dredges and Dredging. Force Pumps. Refloating and Removing Wrecks. Ice-Breakers

Some Aspects of Bucket Dredger Work.* Robert Chalmers. Dock & Harbour July, '24.
Army Engineers Build Four Seagoing Electric Dredges.* Eng. N. R. July 10, '24.
All Electric Sea Going Dredge.* Charles Evan Fowler. Eng. & Contr. July 16, '24.

h. Wharves, Mooring Buoys, Harbor Equipment

Mobile Tower Chuting Plant Builds Concrete Pier at Havana.* Eng. N. R. July 10, '24.

i. Harbors (General Articles)

Chefoo Harbour: Some Notes on Its Construction.* C. Rickard. Dock & Harbour July, '24.
The Estonian Port of Reval (Tallinn).* Dock & Harbour July, '24.

j. Dockyard Machinery and Shipyards. Dry Docks

The New Dry Dock and Ship Repairing Yard at the King's Dock, Swansea, for Palmers' (Swansea) Dry Dock Co., Ltd.* Dock & Harbour July, '24.

H. Railroads. Street and Interurban Railways. Automobiles. Aeronautics**a. Railroads****1. General Articles**

Denver & Rio Grande Western Takes on New Life.* Ry. Age June 21, '24.
Operating Problems of the Railroads. L. G. Coleman. A. I. E. E. July, '24.
Improving Cleveland-Pittsburgh-Pennsylvania R. R.* Eng. N. R. July 17, '24.

3. Roadbed (Construction Work)

A. R. E. A. Rules for Guidance of Maintenance of Way Employees. Eng. & Contr. June 18, '24.

4. Track

Track Construction Methods in New Orleans. Eng. & Contr. June 18, '24.
Preferences as to Tie Size and Spacing.* (Committee Report Submitted to Am. Ry. Eng. Assoc.) Eng. & Contr. June 18, '24.

A Remarkable Record in a Turntable Renewal.* Ry. Age June 21, '24.

Wheel Guiding Flange Frogs for St. Louis Terminal.* Eng. N. R. June 26, '24.

The Sorbittic Treatment of Rails.* Cecil J. Allen. Ry. Rev. June 28, '24.

Pennsylvania Completes New Four-Track Work.* Ry. Age July 5, '24.

Grade Separation at Detroit, Grand Trunk Railway.* Eng. N. R. July 10, '24.

6. Rolling Stock (Locomotives, Cars) Fuel

Behavior and Movement of Locomotive Wheels on the Track.* J. Buchli. Int. Ry. Cong. Assoc. June, '24.

The I-C-1 (2-6-2) Electric Locomotives of the Swiss Federal Railways.* E. Savary. (From *Bulletin Technique de la Suisse Romande*.) Int. Ry. Cong. Assoc. June, '24.

Reading Company Consolidation Locomotives.* Ry. Rev. July 12, '24.

Note sur les Conditions d'Installation des Cabinets de Toilette des Voitures de Chemins de Fer.* (Note on the Conditions of Installation of the Water-Closets of Railroad Cars.)

Keuffer. Rev. Gen. June, '24.

Les Wagons Frigorifiques sur les Reseaux Francals.* (Refrigerator Cars on French Lines.)

M. A. Sigmann. Rev. Gen. June, '24.

7. Use of Electricity

Automatic Substations for Supplying 1500 Volts Direct Current to Suburban Railways.*

C. A. Butcher. A. I. E. E. July, '24.

Power in Transport.* D. E. Blair. Eng. Inst. Can. July, '24.

Railway Electrification Progress in Switzerland.* A. Rohn. Eng. N. R. July 3, '24.

Electrification du Réseau du Midi. (Electrification of the Midi Line.) Bachelery. (Paper

read before joint meeting of Inst. of Elec. Engrs. and Soc. des Ings. Civils de France.)

Rev. Gen. June, '24.

Le Wagon-Dynamometre des Chemins de Fer Federaux Suisses.* (The Dynamometer Car

of the Swiss Federal Railroads.) Gen. Civ. June 14, '24.

L'Etat Actuel des Travaux d'Electrification des Chemins de Fer du Midi. (Present State of

the Electrification of the Midi Railroads.) Gen. Civ. June 21, '24.

Die Kompoundierung des Seriemoors für die Nutzbremmung auf Gleichstrombahnen.* (The

Compounding of Series Motors for Efficient Braking on Continuous-Current Roads.)

W. Kummer. Schw. Bauz. June 14, '24.

8. Stations. Engine Houses. Shops

Markham Yard.* W. P. Cronican. West. Soc. Engrs. June, '24.

Rail and Ferry Passenger Terminal of the Reading Company at Camden.* Eng. & Contr.

June 18, '24.

Car Building Program in a Railroad Shop.* Ry. Rev. June 21, '24.

Southern Pacific Opens Modern Ticket Office at San Francisco.* Ry. Age June 21, '24.

New Turntable Installed in Record Time.* Ry. Rev. June 28, '24.

Burlington Operates Four Concrete Products Plants.* Ry. Rev. June 28, '24.

Kansas City Southern Enlarges Its Main Shops.* Ry. Age June 28, '24.

A Small Union Passenger Station for Southern Railroads.* Ry. Eng. & Main. July, '24.

Santa Fe Builds New Water Stations Where Supply Is Limited.* E. O. Olson. Ry. Eng. &

Main. July, '24.

b. Special Railroads**2. Aerial Railroads (Funicular, Monorail)**

Einzelheiten der Elektrohängebahnen.* (Details of the Electric Suspended Railroad.)

P. Stephan. Ver. deu. Ing. June 7, '24.

d. Street Railway, Elevated Railways, Subways**6. Traction**

Power in Transport.* D. E. Blair. Eng. Inst. Can. July, '24.

Beurteilung des Gemeindepjektes betreffend die Einführung des elektrischen Betriebes der

Wiener Stadtbahn.* (Criticism of the Municipal Project Concerning the Electrification

of the Vienna City Railroad.) Carl Hochenegg. Oest. Ing. Arch. Ver. June 13, '24.

f. Aeronautics:

1. General Articles

- Wissenschaftliche Grundlagen und Aussichten des motorlosen Fluges.* (Scientific Principles and Outlook of Motorless Flight.) A. Pröll. Ver. deu. Ing. May 31, '24.
 Die Entwicklung des Flugmotors seit dem Krieg.* (The Development of Airplane Engines Since the War.) H. Baer. Ver. deu. Ing. May 31, '24.
 Die Frage des Baustoffes im Leichtbau.* (The Question of Materials in Light Weight Construction.) P. Meyer. Ver. deu. Ing. May 31, '24.
 Leichtbau. (Light Weight Construction.) Ver. deu. Ing. May 31, '24.

2. Dirigible Balloons

- Fünfundzwanzig Jahre Zeppelin-Luftschiffbau.* (Twenty-five Years of Zeppelin Airship Building.) L. Dürr. Ver. deu. Ing. May 31, '24.

3. Aeroplanes

- The Design of Modern Airplanes.* Alfred S. Niles. Mil. Engr. July-Aug., '24.
 Die Nichtisenmetalle unter besonderer Berücksichtigung der Luftfahrzeuge.* (Non-Ferrous Metals with Special Regard to Airplanes.) E. H. Schulze. Ver. deu. Ing. May 31, '24.

I. Municipal Water-Works. Agricultural Engineering

a. General Articles

- Planning Municipal Water-Works System. Can. Engr. June 24, '24.
 Water Works and the Fire Protection of Small Municipalities. Charles W. Parsons. Am. W. W. Assoc. July, '24.
 A Cost System for Water Works in Large Towns and Small Cities.* Erle E. Peacock. Am. W. W. Assoc. July, '24.
 Irrigation Flume of V-Section Supplies Oregon Project.* Eng. N. R. July 3, '24.
 The Water Supply of Washington, D. C.* John Elliott Wood. Mil. Engr. July-Aug., '24.

b. Hydrology. Water Resources

- Water Conservation Program for Los Angeles County.* Eng. N. R. June 26, '24.
 The Future of Water Reservoir Projects in Illinois and Their Relationship to Geologic Data.* M. M. Leighton. Am. W. W. Assoc. July, '24.
 The Use of Balancing Reservoirs in Water Distributing Systems. J. E. Phillips. Am. W. W. Assoc. July, '24.
 Drilling, Care and Operation of Deep Wells. Chas. F. Cole. Am. W. W. Assoc. July, '24.
 Hendersonville, N. C., Gravity Water Supply System. Stanley H. Wright. Am. W. W. Assoc. July, '24.
 Yield of Wells. G. C. Habermeyer. Am. W. W. Assoc. July, '24.
 Water Measuring Devices. Robert L. Daugherty. Am. W. W. Assoc. July, '24.

c. Dams and Reservoirs

- Classification and Definition of Earth Dam Types.* J. Albert Holmes. Eng. N. R. June 26, '24.
 Model of Niagara to Demonstrate Flow Control.* Eng. N. R. June 26, '24.
 Recent Swedish Arch Dam Design. Bo Hellström. (Paper read before World Power Conference.) Eng. July 11, '24.
 The Littleton Reservoir for the Metropolitan Water Board.* Henry E. Stilgoe. Inst. Mun. & Co. Engrs. July 15, '24.
 Zahlentafeln zur günstigsten Formgebung und statischen Berechnung von nach der Stützlinie geformten Bauwerken.* (Numerical Table for the Most Favorable Shaping and Static Calculation of Structures Shaped According to Pressure Lines.) Friedrich v. Bülow. Gesund. Ing. June 7, '24.

d. Analysis and Purification of Water

- Optimum Hydrogen Ion Concentration for Coagulation of Various Waters.* G. F. Catlett. Am. W. W. Assoc. July, '24.
 Taste and Odor in Chlorinated Water.* R. M. Warren and Edward Bartow. Am. W. W. Assoc. July, '24.
 The Relation of Hardness in Water Supply to Public Health.* E. Sherman Chase. Am. W. W. Assoc. July, '24.
 Accurate Control of an Old Filter Plant.* Earle G. McConnell. Am. W. W. Assoc. July, '24.
 A Study of the Efficiency of the Improved Water Purification Plant at Wilmington, N. C.* George D. Norcom. Am. W. W. Assoc. July, '24.
 Sensitive Detection of Suspended Matter and a Proposed Standard of Clarity in Filtered Water.* John R. Baylis. Am. W. W. Assoc. July, '24.
 The Function of Aeration in Water Purification. Malcolm Pirnie. (Paper read before Indiana Sanitary and Water Supply Assoc.) Mun. & Co. Eng. July, '24.
 Alum Agitation Studies at Reading, Pennsylvania.* Charles R. Cox. Eng. N. R. July 17, '24.

e. Distribution of Water

- Water Main Cleaning at New Albany, Indiana.* J. O. Endris. (Paper read before Indiana Sanitary & Water Supply Assoc.) Mun. & Co. Eng. June, '24.
 Comparison of Concrete and Other Pipes. (Abstract of paper read before Am. Water Works Assoc.) Dabney H. Maury. Cem. Eng. July, '24.

f. Drainage of Land

- Method of Reconstructing Old Open Drainage Ditches.* J. L. Parsons. (From *National Reclamation Magazine*.) Eng. & Contr. July 9, '24.

J. Sewerage. Sewage and Refuse Disposal

a. Sewers and Drains

- Completion of Passaic Valley Sewer.* Ralph Van Duyne. (From *The Newarker*). Mun. & Co. Eng. June, '24.
 The Coefficient of Run-Off in Storm Sewer Design.* LeRoy K. Sherman. Mun. & Co. Eng. June '24.
 Construction of Renfrew Street Sewer.* W. Aldridge. Can. Engr. June 17, '24.

b. Sewage Disposal. Purification

- The Control of Oil Pollution in Rhode Island.* Stephen DeM. Gage. Bost. Soc. C. E. June, '24.
 The Sewage Problem of the Sanitary District of Chicago. Langdon Pearse. (Paper read before Illinois Soc. Engrs.) Mun. & Co. Engrs. June, '24.
 Operation of Imhof Sewage Tanks. Earle L. Waterman. Can. Engr. June 24, '24.
 Disposal of Wastes From Dyehouses and Textile Operations. Albert O. True. Am. W. W. Assoc. July, '24.
 Experience in Dewatering Activated Sludge.* Langdon Pearse. (Paper read before Int. Conference on Sanitary Eng.) Mun. & Co. Eng. July, '24.
 Removal and Disposal of Air-Dried Sludge at Baltimore.* John H. Gregory and C. E. Keefer. Eng. N. R. July 3, '24.
 The Sewage Disposal Problem of Chicago.* Langdon Pearse. (Paper read before Illinois Soc. Engrs.) Eng. & Contr. July 9, '24.
 Sludge Disposal by the Digestion Process. John Watson. (Paper read before British Assoc. Mgrs. of Sewage Disposal Works.) Eng. & Contr. July 9, '24.
 Dewatering Activated Sludge.* Langdon Pearse. (Paper read before Int. Conference on Sanitary Eng.) Eng. & Contr. July 9, '24.
 Sewage Disposal Experimental Work. Willem Rudolfs. (From paper read before New Jersey Sewage Works Assoc.) Can. Engr. July 22, '24.
 Increase Sewage Screen Capacity at Long Beach, Calif.* Eng. N. R. July 24, '24.
 Bericht über die versuchsweise Anwendung von Chlorgas in der Kläranlage von Köpenick.* (Report on the Experimental Use of Chlorine Gas in the Köpenick Clarifying Plant.) Reichle and Weldert. Gesund. Ing. June 14, '24.

c. Refuse Disposal

- Die Zersetzung der toten organischen Masse. (The Decomposition of Dead Organic Masses.) Bredtschneider. Gesund. Ing. June 14, '24.

K. Heat Engines

a. Steam Engines—Bollers

- Zwangsläufige Kolbenventilsteuerung Patent Proell.* (Proell Patent Positive Piston Valve Gear.) F. Lehmann. Ver. deu. Ing. June 14, '24.

b. Steam Turbines

- Evaluation of Pump Bids for Chicago's Largest Station.* Eng. N. R. June 26, '24.

c. Gas and Oil Engines

- Modern Diesel Engine Installation.* Foster Veltenshelmér. Mil. Engr. July-Aug., '24.
 Bestimmung des Zündpunktes unter Druck.* (Determination of the Ignition Point under Pressure.) J. Tauss and F. Schulte. Ver. deu. Ing. May 31, '24.
 Untersuchungen über den Einspritzvorgang bei Dieselmotoren.* (Researches on the Process of Injection in Diesel Engines.) W. Riehm. Ver. deu. Ing. June 21, '24.

L. Electricity

b. Distribution and Transmission of Electricity

- Electric Power Transmission and Distribution in Canada.* Julian C. Smith and C. V. Christie. Eng. Inst. Can. July, '24.

1. Power Plants

- Central Station Practice in Europe.* B. G. Jamieson. West. Soc. Engrs. June, '24.
 General Light and Power Supply of Chicago. G. M. Armbrust and J. B. Jackson. A. I. E. E. July, '24.
 Utilization of Power.* Eng. Inst. Can. July, '24.
 High Pressures and High Temperatures in Central Stations.* W. S. Monroe. Power July 15, '24.

- Les Stations Centrales Electriques Chauffees au Charbon Pulverise de Cahokia et de Peoria (Etats Unis).* (The Central Electric Stations Fired with Powdered Coal at Cahokia and Peoria, United States.) Gen. Civ. June 14, '24.

2. Long-Distance Transmission of Energy

- Lightning Arrester Experience in California, Particularly as Regards the Southern California Edison Company's System.* Edwin R. Stauffacher. A. I. E. E. July, '24.
 New Type of High-Tension Network.* Percy H. Thomas. A. I. E. E. July, '24.

3. Distribution and Wiring of Electricity

- Application of Automatic Substations to Central Station Service in Metropolitan Districts. C. W. Place. A. I. E. E. July, '24.
 Concrete Conduit Gaining Favor.* Cem. Eng. July, '24.

5. Transformers and Converters

Insulation Tests of Transformers as Influenced by Time and Frequency.* Fred. J. Vogel. A. I. E. E. July, '24.

c. Electric Lighting**2. Uses**

Lighting the Ideal Road Section of Lincoln Highway.* Eng. N. R. July 3, '24.

d. Mechanical Uses of Electricity**1. Electric Motors**

A New Type of Single-Phase Motor.* S. R. Bergman. A. I. E. E. July, '24.

2. Servomotors, Hoists, Elevators, Handling Machinery

Notes on Mine Hoisting.* F. L. Stone and F. R. Grant. A. I. E. E. July, '24.

M. Architecture**a. Educational, Government and Scientific Buildings**

Das neue Polizeidienstgebäude in Lubeck.* (The New Police Station Building in Lubeck.) F. W. Virck. Z. d. Bauver. March 5, '24.

d. Storage Buildings

Cold-Storage and Terminal Warehouse at Cincinnati.* Eng. N. R. July 24, '24.

f. Factories and Mill Buildings

Industriebouten.* (Factory Buildings.) Hermann Distel. Z. d. Bauver. June 11, '24.

O. Administration, Legislation, Economics, Statistics**d. Administrative and Financial Management of Means of Communications****2. Routes and Roads**

Operations Under Canada Highways Act. A. W. Campbell. (Paper read before Canadian Good Roads Assoc.) Can. Engr. July 1, '24.

e. Legislation—Question Concerning Wages and Working Conditions

Compensation of Practising Engineers: A Critical Study. Clinton L. Bogert. Eng. N. R. June 26, '24.

Q. Surveying and Geodesy

Precise Tape Measurement Over Ice.* Hibbert M. Hill. Mil. Engr. July-Aug., '24.

Projections as Framework for Maps.* Oscar S. Adams. Mil. Engr. July-Aug., '24.

Stereophotography in Aerial Mapping.* James W. Bagley. Mil. Engr. July-Aug., '24.

S. City Planning

Solution of the Transportation, Parking and Flood Problems of Pittsburgh. E. K. Morse. Engrs. Soc. W. Pa. June, '24.

Les Restrictions a la Liberté de Batir en Bordure des Voies Publiques. (Restrictions of the Liberty to Build at the Edge of Public Highways.) Léon Petit. Gen. Civ. June 14, '24.

A Method of Adopting and Enforcing a Comprehensive Development Plan for Unbuilt Areas.

Robert Whitten. Land. Arch. July, '24.

Street Widening Methods with Particular Reference to Distributing the Cost. Harland Bartholomew. (Paper read before Conference on City Planning.) Mun. & Co. Eng. July, '24.

Planning of Kitchener and Waterloo, Ont.* Horace L. Seymour. Can. Engr. July 8, '24.

to individuals in the United States. The construction of industrial plants. Four years in full course of management of well known firm specializing in the type of work. B-587.

GRADUATE CIVIL ENGINEER. M. A. B. C. E. E. age 41; married. Twenty years professional engineering experience; six years railroad construction, including tunnel, bridge, concrete retaining walls, etc. Has worked with general track experience. Also highway, electrical, mechanical and brick industrial plants, power stations. Reside at B-1187.

GRADUATE CIVIL ENGINEER. L. A. M. B. C. E. E. age 37; associate as well as technical. Six years' experience on topographic survey, field office and in charge of construction of hydro-electric and steam power plants. B-1141.

CIVIL ENGINEER. Assoc. M. A. B. C. E. E. age 43. Broad general engineering and construction experience on large and small projects, especially in water supply, sewerage, utility, industrial, and general construction. Resident in development of new programs. Location desired. Reside at B-590.

ASSOCIATE MEMBER. AM. B. C. E. E. M. I. T. 1912; age 31. Twelve years' experience covering various types of construction, supervision of design office and field construction, and special investigations of industrial processes, etc. Desires and capable of handling new construction, additions and maintenance for industrial corporations doing own work. B-4410.

EXECUTIVE ENGINEER. Assoc. M. A. B. C. E. E. age 36. Graduate; age 36. Technical

Employment Service

The Engineering Societies Employment Service is under the joint management of the National Societies of Civil, Mining, Mechanical, and Electrical Engineers as a co-operative Bureau available only to their membership, and maintained by the contributions from the Societies and their individual members who are directly benefited.

Men Available.—Under this heading, brief announcements will be published without charge. These announcements will not be repeated, except on request received after an interval of one month. Names and records will remain in the active files of the Bureau for a period of three months and are renewable on request. Notice for *Proceedings* should be addressed to Employment Service, 33 West 39th Street, New York, N. Y., and should be received prior to the first of the month.

Opportunities.—A Bulletin of engineering positions available is published weekly and is available to members of the Societies concerned at a subscription rate of \$3 per quarter, or \$10 per annum, payable in advance. Positions which are not filled promptly as a result of publication in the Bulletin, may be announced herein.

Voluntary Contributions.—Members obtaining positions through the medium of this Service are invited to co-operate with the Societies in the financing of the work by nominal contributions made within thirty days after placement, on the basis of \$10 for all positions paying a salary of \$2 000 or less per annum; \$10 plus 1% of all amounts in excess of \$2 000 per annum; temporary positions (of one month or less), 3% of total salary received. The income contributed by the members, together with the finances appropriated by the four Societies named, will be sufficient, it is hoped, not only to maintain but to increase and extend the service.

Replies to Announcements.—Replies to announcements published herein, or in the Bulletin, should be addressed to the key number indicated in each case, with a two-cent stamp attached for re-forwarding, and forwarded to the Employment Service at the address given. Replies received by the Bureau after the positions to which they refer have been filled, will not be forwarded.

MEN AVAILABLE

CIVIL ENGINEER, Assoc. M. Am. Soc. C. E.; age 49. Broad general municipal and consulting experience on large and small projects, especially in water supply, sewerage, utility valuation, investigations, and reports; traveling in development of new business. Location desired, Eastern United States. A-5070.

ASSOCIATE MEMBER, Am. Soc. C. E., M. I. T. 1912; age 34. Twelve years' experience covering various types of construction, supervision of design, office and field organizations, and special investigations of industrial questions, etc. Desirous and capable of handling new construction, additions, and maintenance for industrial corporation doing own work. B-4410.

EXECUTIVE-ENGINEER, Assoc. M. Am. Soc. C. E.; Yale graduate; age 36. Technical

experience in design and supervision of construction of industrial plants. Past four years in full charge of management of well known firm specializing in this type of work. B-5857.

GRADUATE CIVIL ENGINEER, M. Am. Soc. C. E.; age 41; married. Twenty years' practical engineering experience; six years railroad construction, including tunnel, bridge, concrete retaining walls, pile-driving, together with general track experience. State highway, reinforced concrete and brick industrial plants, power stations, hospitals, etc. B-7787.

GRADUATE CIVIL ENGINEER, Jun. Am. Soc. C. E.; age 27; executive as well as technician. Six years' experience on topographic survey, field office, and in charge of construction on hydro-electric and steam power plants. B-8144.

GRADUATE ENGINEER, Assoc. M. Am. Soc. C. E.; age 36; married. Sixteen years experience in municipal, county, and oil field work as draftsman, resident engineer, and superintendent, with last five years in practice as consulting engineer in municipal, drainage, and appraisal work. Registered in three States. Middle West location preferred account of owning home. B-8357.

INDUSTRIAL ENGINEER. Assoc. M. Am. Soc. C. E.; technical graduate; age 36; married; in vigorous health. Three years' experience on railway maintenance and terminal work. Five years' experience as resident engineer with large oil company, in charge of maintenance and incidental construction. Two years as construction superintendent for same company on improvements costing \$4 000 000. Prefer position with large oil refinery or pipe line company. B-8413.

DESIGNING AND CONSTRUCTION ENGINEER, Assoc. M. Am. Soc. C. E.; graduate C. E.; age 31; married. Eight years' experience covering location, design, and construction of hydro-electric power plants; general construction work in America and abroad. At present, Chief Engineer, reinforced concrete design. Desires connection with engineering contracting concern. Speaks French, Italian, German, and English. Location immaterial. B-8482.

CIVIL ENGINEER, Assoc. M. Am. Soc. C. E.; age 44; married. Fifteen years experience in railroad, highway and general construction work both technical and administrative. Understands Spanish and tropical conditions. Now in responsible Government position, but desires immediate change. Prefers Northwest, but will go anywhere for permanent connection with good prospects of advancement. B-8487.

Membership

(From July 2, to August 5, 1924)

Additions

		Date of Membership.
ANDERSON, Marshall Patton. Box 1040, Columbus, Ga.	Jun.	Feb. 25, 1924
ARANIBAR, Ernest. Asst. to Field Engr., The Foundation Co., 35 West 94th St., New York, N. Y.	Jun.	Feb. 25, 1924
BROWN, Julius DeWitt. Sales Engr., Anthony Co., Streator, Ill.	Assoc. M.	June 16, 1924
BROWN, Nathaniel Adelbert, Engr.-in-Chg., Sewage Disposal Constr., 152 Post Ave., Rochester, N. Y.	M.	Feb. 25, 1924
CASHION, Joseph Estes. R. D. No. 7, Butler, Pa.	Affiliate	April 7, 1924
CHASE, Rolland Whitfield. Care, Public Works, St. Croix, Virgin Islands.	Jun.	June 16, 1924
CHUANG, Ping Chuan. Detailer, The Foundation Co., 536 West 112th St., New York, N. Y.	Jun.	Feb. 25, 1924
CRAIG, Wallace Dewey. Engr. and Draftsman, Metropolitan Utilities Dist., 3130 Lafayette Ave., Omaha, Nebr.	Jun.	June 16, 1924
CUTLER, Daniel Boyden. Dist. Engr., State Highway Dept., Batesville, Ark.	Assoc. M.	May 15, 1917
	M.	June 16, 1924
DOOLITTLE, Frederick William, Vice-Pres., The North Am. Co.; Cons. Engr., 60 Broadway, New York, N. Y.	Jun.	April 5, 1910
	Assoc. M.	July 2, 1913
	M.	June 16, 1924
FARROW, Charles Maynard. Asst. County Engr., Montgomery County, Box 160, Montgomery, Ala.	Assoc. M.	May 19, 1924
FENKELL, Neal Harris. 1615 Warwood Ave., Wheeling, W. Va.	Jun.	June 16, 1924
FOGG, Alden Knowlton. Lieut., C. E. C., U. S. N. Bureau of Yards and Docks, Navy Dept., Washington, D. C.	Jun.	Dec. 6, 1915
	Assoc. M.	June 16, 1924
GELWIX, Daniel Edmund. Div. Engr., St. L. & S. F. Ry., Care, Frisco Ry., Chaffee, Mo.	Assoc. M.	Oct. 10, 1916
	M.	June 16, 1924
GREENWOOD, Heman Charles. Mgr., Hydr. Dept., M. Hilpert & Co., Caixa Postal 2026, Rio de Janeiro, Brazil.	Jun.	May 1, 1920
	Assoc. M.	June 19, 1924
GREER, John. Res. Engr. under Constr. Engr., Maine Cent. R. R., Pleasant Ave., Peaks Island, Me.	Assoc. M.	Feb. 25, 1924
HAY, Stanley Gardiner. Senior Chartered Civ. Engr. and Chf. of Drawing Office, Bldg. Dept., Calico Printers Assoc., Ltd., 17 Balfour Rd., Southport, England.	Assoc. M.	May 19, 1924
HEILMANN, Herbert William. Asst. County Engr., Essex County; Engr. and Surv., 95 West End Ave., Newark, N. J.	Assoc. M.	Mar. 12, 1923
	M.	June 16, 1924
HENDERSON, William Davis. Asst. Engr., Jackson & Moreland, 387 Washington St., Boston (Res., 12 Bemis Rd., Wellesley Hills), Mass.	Assoc. M.	June 16, 1924
HENRICHSEN, Christian Brun. Room 738, Pennsylvania R. R. Station, New York, N. Y.	Jun.	Feb. 25, 1924
JAMES, Willard Whitaker. Valuation Engr., C. R. R. of N. J., 218 Leland Ave., Plainfield, N. J.	M.	June 16, 1924
KERR, Duncan John. Asst. to Vice-Pres., Operating Dept., G. N. Ry., 1617 Summit Ave., St. Paul, Minn.	M.	June 16, 1924
KIMES, Carroll Souders. Insp., State Highway Dept., 300 Yost Ave., Spring City, Pa.	Jun.	June 16, 1924
KIRCHER, Paul. Mgr., Pole Dept., Massey Concrete Products Corporation, and Res. Mgr., Canadian Concrete Products Co., Ltd., 968 Peoples Gas Bldg. (Res., 7332 Luella Ave.), Chicago, Ill.	Assoc. M.	Oct. 8, 1918
	M.	June 16, 1924
KOCH, Otto Herman Siegfried. Checker, Niagara, River Bridge Dept., M. C. R. R., Michigan Central Terminal, Detroit, Mich.	Jun.	Oct. 7, 1914
	Assoc. M.	June 16, 1924
LINDSEY, Ray Vernet. Div. Engr., State Highway Comm., Box 225, McAlester, Okla.	Assoc. M.	June 16, 1924
LOVE, George Corpening. Chf. Engr., Old Dominion Land Co. and Newport News Light & Water Co., Box 661, Newport News, Va.	Assoc. M.	May 19, 1924
MANNES, Conrad Olaf. Res. Engr., State Highway Dept., Route 2, Elma, Wash.	Assoc. M.	April 7, 1924
MEANS, John Siemon. Res. Engr., H. S. Crocker, 16th St., Viaduct, 306 Tramway Bldg. (Res., 1401 Lafayette St.), Denver, Colo.	Jun.	April 18, 1916
	Assoc. M.	Mar. 9, 1920
	M.	June 16, 1924
MILLER, George Warren. Senior Draftsman, Board of Education, 3523 La Ciede Ave., Los Angeles, Calif.	Jun.	June 16, 1924
MITCHELL, Louis. Dean and Prof. of Civ. Eng., L. C. Smith Coll. of Applied Science, Syracuse Univ. (Res., 515 Walnut Ave.), Syracuse, N. Y.	Affiliate	Mar. 14, 1916
	Assoc. M.	June 2, 1920
	M.	June 16, 1924
MORRISON, Thomas Montgomery. Ford Hotel, Chattanooga, Tenn.	M.	Jan. 14, 1924
NICKEL, Edward August. 1935 Berryman St., Berkeley, Calif.	Jun.	June 16, 1924
PAYROW, Harry Gordon. Asst. Prof., Civ. Eng. Dept., Lehigh Univ. (Res., 1133 Main St.), Bethlehem, Pa.	Jun.	Feb. 4, 1908
	Assoc. M.	Dec. 3, 1913
	M.	April 8, 1924

		Date of Membership.
PUTNAM, Rufus Willard. Maj., Corps of Engrs., U. S. A., 5371 South Dearborn St., Chicago, Ill.	M.	May 19, 1924
ROCKETT, Louis Charles. Highway Engr., U. S. Bureau of Public Roads, Dist. No. 13, Santa Fe, N. Mex.	Assoc. M.	June 16, 1924
ROSS, Blair Arthur. Junior Engr., Mississippi River Comm., 1006 McCall Bldg., Memphis, Tenn.	Jun. Assoc. M.	Mar. 13, 1917 Oct. 14, 1919 June 16, 1924
SCHOBINGER, George. Representative in Rio de Janeiro for Dwight P. Robinson & Co., Inc., 125 East 46th St., New York, N. Y.	Jun. Assoc. M.	Oct. 5, 1909 July 2, 1913 June 16, 1924
SHOREY, Thomas Roy. 30 New Haven Ave., Woodmont, Conn.	Assoc. M.	Feb. 25, 1924
SIMBERG, Harry. Instrumentman, Phenix Utility Co., Hawley, Pa.	Jun.	May 19, 1924
SMITH, Frank Bernard. Sales Engr., Bucyrus Steam Shovel Co., 3038 North Halsted St., Chicago, Ill.	Assoc. M.	Feb. 25, 1924
SMITH, Joseph Wilson. Asst. Valuation Engr., Erie R. R. (Res., 61 Christopher St.), Montclair, N. J.	M.	May 19, 1924
SMITH, Winfield Scott, Jr. Engr., Carroll Contr. Co., Inc.; (Res., 154 Croton Ave.), Ossining, N. Y.	Assoc. M.	May 19, 1924
STUCKEY, Arthur Ray. Box 1098, Columbus, Ga.	Jun.	April 7, 1924
SUKHUM, Prasob. Saladeng, Bangkok, Slam.	Jun.	Feb. 25, 1924
SUTHERLAND, Edward Francis. Jun. Civ. Engr., U. S. Bureau of Roads, 672 Second Ave., San Francisco, Calif.	Jun.	May 19, 1924
SUZUKI, Edward Yoshihide. Care, Reconstruction Bureau, Tokyo, Japan.	Assoc. M.	Jan. 14, 1924
TINER, Wayne Darwin. Office Asst., The Terrell Bartlett Engrs., Inc., 612 Calcasieu Bldg., San Antonio, Tex.	Jun. Jun.	June 16, 1924 Oct. 2, 1900
TYRRELL, Warren Ayres. Merrick Ave., Merrick, N. Y.	Assoc. M.	Oct. 1, 1902 June 16, 1924
VAN ALSTINE, Roy Daniel. Director of Public Service and City Engr. of Long Beach, City Hall (Res., 854 Elm Ave.), Long Beach, Calif.	Assoc. M.	Feb. 25, 1924
VON MAUR, Jacob Daniel. Care, Consumers Gas Co., 19 Toronto St., Toronto, Ont., Canada.	M.	May 19, 1924
WANG, Kuei H. in. 205 Summit St., Bethlehem, Pa.	Jun.	May 19, 1924
WEBB, Charles Galloway. Designer, Truscon Steel Co., Box 171, Oklahoma City, Okla.	Jun.	May 19, 1924
WHEAT, Thomas Edward Moss. Cons. Civ. Engr., 306 Murphy Bldg., Detroit, Mich.	Assoc. M.	Mar. 7, 1921 June 16, 1924
WILHELM, Frederick Edward. Chf Engr., Alex. Simpson, Jr., Co. (Res., 1272 Washington St.), Denver, Colo.	Assoc. M.	May 19, 1924
WRIGHT, James Clayton. Route 1, Arlington, Calif.	Assoc. M.	May 19, 1924
YOUNGBERG, Gilbert Albin. Lt. Col., Corps of Engrs., U. S. A.; Dist. Engr., U. S. Engr. Office, Box 45, Jacksonville, Fla.	M.	June 16, 1924

Resignations

	MEMBERS	Date of Resignation.
PROCTOR, Elwynne Blair		Aug. 1, 1924

Deaths

- AUTEN, John Cummings. Elected Member, May 13, 1918; date of death unknown.
- BABCOCK, Henry Nash. Elected Member, September 3, 1884; died March 17, 1924.
- BONTECOU, Daniel. Elected Member, November 5, 1879; died July 14, 1924.
- BUDGE, Enrique. Elected Member, February 1, 1882; died June 2, 1924.
- COHILL, Andrew Arnold. Elected Member, January 13, 1919; died July 1, 1924.
- DUNLAP, John Hoffman. (Secretary.) Elected Associate Member, April 17, 1917; Member, June 6, 1921; died July 29, 1924.
- FERRY, Charles Addison. Elected Junior, May 4, 1881; Member, January 2, 1889; died July 31, 1924.
- HAYWARD, Robert Francis. Elected Member, July 10, 1907; died April 10, 1924.
- MCCLINTOCK, J. Y. Elected Member; October 2, 1895; died July 8, 1924.
- NUGENT, Paul Cook. Elected Member, May 3, 1910; died July 15, 1924.

THOMAS, David Gorton. Elected Member, June 1, 1909; died June, 1924.

TRAUTWINE, John Cresson, Jr. Elected Associate, December 5, 1888; Member, April 26, 1921; died July 4, 1924.

VAN ORDEN, Charles Hopkins. Elected Member, June 1, 1898; died May 9, 1924.

Total Membership of the Society, August 5, 1924

Members	4 921
Associate Members.....	5 435
Corporate Members.....	10 356
Honorary Members.....	13
Juniors	698
Affiliates	167
Fellows	8

Total..... 11 242

Resignations

Deaths

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